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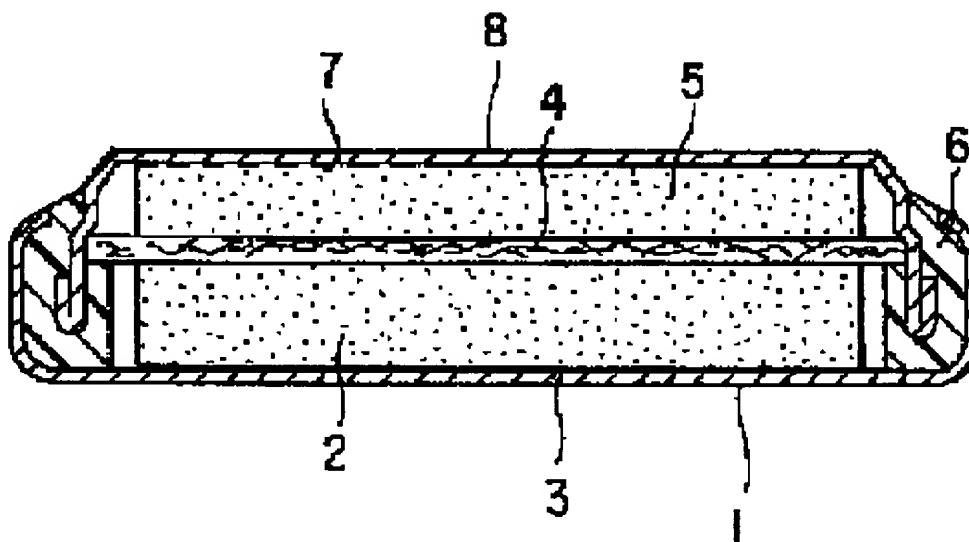
(74) Representative:

(54) NONAQUEOUS ELECTROLYTIC SECONDARY BATTERY

(57) Abstract:

PROBLEM TO BE SOLVED: To provide high charging and discharging efficiency, an superior cycle characteristic, and compatibility with a nickel - cadmium battery, by constituting a positive electrode of an active material of $\text{Li}_4/3\text{Ti}_5/3\text{O}_4$, a conducting material of vapor-phase carbon fiber, and a binder.

SOLUTION: A positive electrode 2 is obtained by pressure-forming a mixture including an active material of $\text{Li}_4/3\text{Ti}_5/3\text{O}_4$, a conducting material made of a vapor-phase carbon fiber, and a binder. The vapor-phase carbon fiber 5-10 vol.%, having a diameter of 0.1-0.5 μm and the length of 10-100 μm , is included into the active material, in order to prevent lowering of charging efficiency and maintain a cycle characteristic. The potential of the active material $\text{Li}_4/3\text{Ti}_5/3\text{O}_4$ is 1.5 V with the Li^+/Li potential as the reference, and the potential of a carbon material which is a negative electrode material is about 0 V on with the Li^+/Li potential as the reference, consequently the secondary battery having an operating potential of 1.5 V is obtained. The battery presents a high discharge maintenance ratio in spite of repeated charges and discharges, and the crystal structure will not change even under the overcharged condition. Further, the vapor-phase carbon fiber has high resistance against expansion and contraction, low water absorption, and superior conductivity.



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